

CLAIMS

1. Process for producing carboxylic acids by oxidation of a hydrocarbon with oxygen or a gas containing oxygen, in the presence of a monocarboxylic acid-based solvent and of an oxidation catalyst, characterized in that a step consisting of hydrolysis of the esters formed is carried out by treatment of the reaction medium before extraction of the carboxylic acids or by treatment of the organic phase derived from the reaction medium after extraction of the carboxylic acids formed.
- 15 2. Process according to Claim 1, characterized in that the hydrolysis step is carried out by addition to the medium to be treated of a strong acid and maintenance of said medium at a temperature of greater than 50°C, preferably of 20 between 80°C and 200°C.
- 25 3. Process according to Claim 2, characterized in that the strong acid is chosen for acids having a pKa of less than or equal to 2.
4. Process according to Claim 2 or 3, characterized in that the strong acid is carried on or attached to an inert material such as a resin.
- 30 5. Process according to claim 4, characterized in that the resins comprising a strong acid are chosen from the group comprising sulphonic acids.
- 35 6. Process according to one of the preceding claims, characterized in that the separation of the carboxylic acids produced from the reaction medium is carried out by means of separation by settling out.

7. Process according to one of Claims 1 to 5, characterized in that the separation of the carboxylic acids produced from the reaction medium is obtained by liquid/liquid extraction.

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8. Process according to one of the preceding claims, characterized in that the organic phase obtained after separation of the carboxylic acids and hydrolysis of the esters is recycled at the 10 oxidation step.

9. Process according to one of the preceding claims, characterized in that the organic phase recovered after separation of the diacids formed is 15 subjected to distillation of the compounds having a boiling point less than or equal to that of the alcohol formed during the oxidation step, before the hydrolysis step.

20 10. Process according to one of Claims 1 to 8, characterized in that the organic phase recovered after separation of the diacids formed is subjected to distillation of the compounds having a boiling point less than or equal to that of the 25 acid solvent used in the oxidation step, before the hydrolysis step.

11. Process according to one of the preceding claims, characterized in that the acids formed during the 30 hydrolysis step are extracted from the medium with a solvent for said acids.

12. Process according to one of Claims 1 to 9 and 11, characterized in that the oxidation solvent 35 present in the hydrolysis medium is extracted and purified before recycling at the oxidation step.

13. Process according to Claim 11, characterized in that the acids recovered from the hydrolysis

medium are mixed with the diacids extracted from the oxidation medium or in the oxidation medium before extraction of the diacids.

- 5 14. Process according to one of the preceding claims, characterized in that the hydrocarbon is a cycloalkane.
- 10 15. Process according to one of the preceding claims, characterized in that the cycloalkane is chosen from the group comprising cyclohexane and cyclododecane.
- 15 16. Process according to one of the preceding claims, characterized in that the solvent is chosen from the group comprising monocarboxylic acids comprising from 1 to 6 carbon atoms, and acids that are lipophilic in nature, comprising from 7 to 20 carbon atoms.
- 20 17. Process according to one of the preceding claims, characterized in that the lipophilic acids are chosen from the group comprising hexanoic acid, heptanoic acid, octanoic acid, 2-ethylhexanoic acid, nonanoic acid, decanoic acid, undecanoic acid, dodecanoic acid, stearic acid (octadecanoic acid) and their permethylated derivatives, 2-octadecylsuccinic acid, 3,5-ditert-butylbenzoic acid, 4-tert-butylbenzoic acid, 4-octylbenzoic acid, tert-butyl hydrogen orthophthalate, naphthenic or anthracenic acids substituted with alkyl groups, substituted derivatives of phthalic acids, and fatty diacids.
- 30 35 18. Process according to Claim 16, characterized in that the lipophilic acid is chosen from the group comprising dimer fatty acids or naphthenic or anthracenic acids substituted with tert-butyl groups.

19. Process according to one of the preceding claims, characterized in that the catalyst is chosen from the group of transition metals.

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20. Process according to Claim 18, characterized in that the catalyst is based on manganese in combination with a co-catalyst chosen from the group comprising cobalt, zirconium, cerium, hafnium and iron.

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21. Process according to one of the preceding claims, characterized in that the polycarboxylic acids produced are chosen from the group comprising adipic acid, succinic acid, glutaric acid, dodecanedioic acid and/or a mixture thereof.

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